N.S.W. DEPARTMENT OF AGRICULTURE.

BIOLOGICAL BRANCH - DIVISION OF SCIENCE SERVICES.

P L A N T D I S E A S E S U R V E Y

for the

TWELVE MONTHS ENDING 30th JUNE, 1954.

TWENTY-FOURTH ANNUAL REPORT.

Notes compiled by officers of the Plant Pathological Section of the Biological Branch, New South Wales Department of Agriculture, Sydney, Australia.

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JUN 1955

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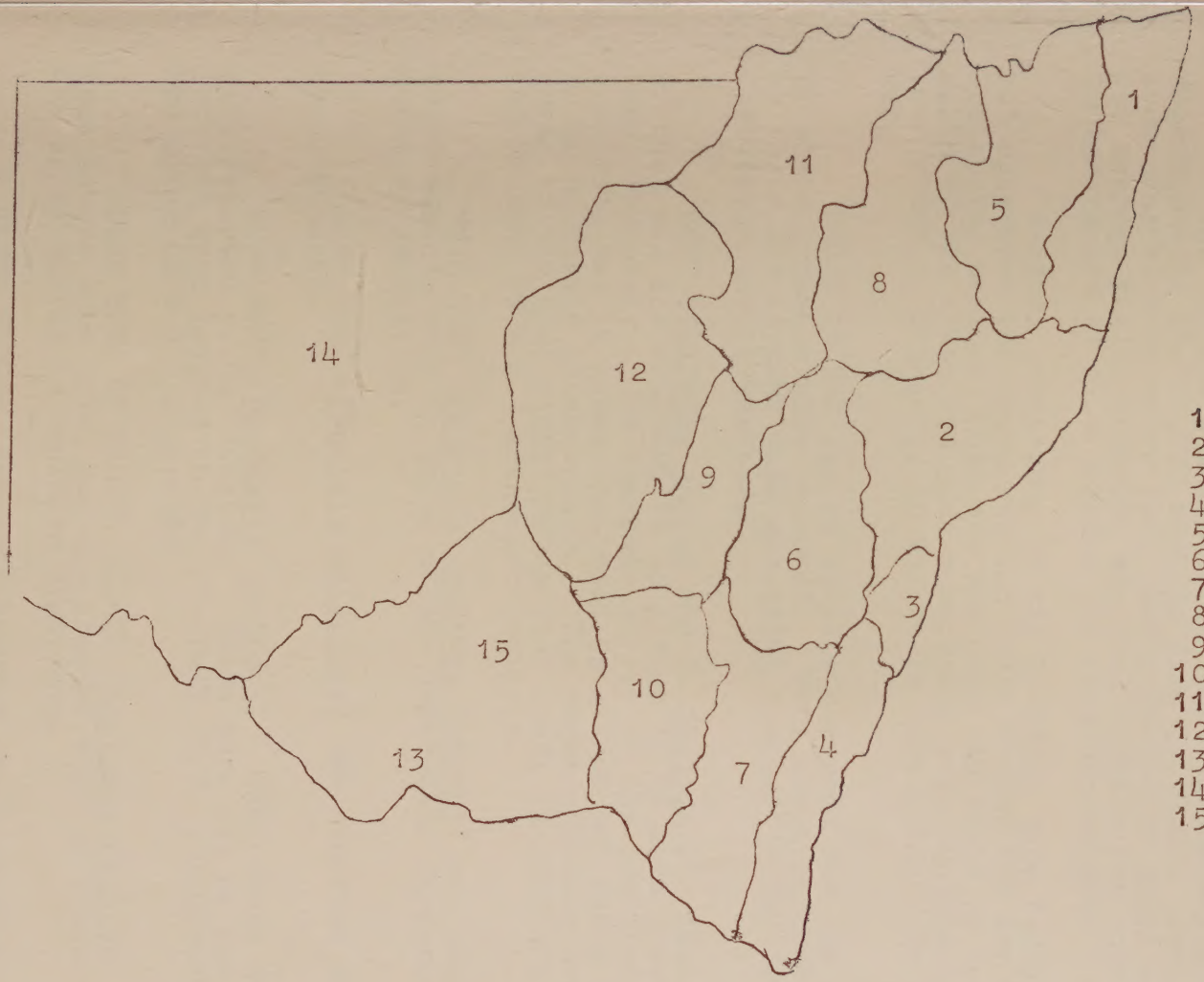

KEY

1. North Coast (N.C.)
2. Central Coast (C.C.)
3. Metropolitan Area (M.A.)
4. South Coast (S.C.)
5. Northern Tableland (N.T.)
6. Central Tableland (C.T.)
7. Southern Tableland (S.T.)
8. North Western Slope (N.W.S.)
9. Central Western Slope (C.W.S.)
10. South Western Slope (S.W.S.)
11. North Western Plain (N.W.P.)
12. Central Western Plain (C.W.P.)
13. Riverina (R.)
14. Western Division (W.D.)
15. Murrumbidgee Irrigation Areas (M.I.A

DISTRICTS OF NEW SOUTH WALES.

DEPARTMENT OF AGRICULTURE

NEW SOUTH WALES

BIOLOGICAL BRANCH - DIVISION OF SCIENCE SERVICES

PLANT DISEASE SURVEY - 1953/54.

TWENTY-FOURTH ANNUAL REPORT.

CEREALS.

WHEAT:

The 1953/54 wheat harvest in New South Wales yielded approximately 65,000,000 bushels from 3,470,000 acres, an area considerably above last year's unusually small acreage. The average yield, however, was 18.7 bushels per acre compared to the record of 21.1 bushels the previous season.

Weather conditions in the Riverina were favourable but elsewhere the crops started badly during the dry winter. The spring weather, however, was good and crops in most parts of the state finished remarkably well considering their poor start. Diseases, on the whole were relatively unimportant.

FROST INJURY was as usual widespread but few instances of serious damage were reported. Many crops injured early in their development made excellent recoveries during the favourable spring weather.

BUNT (Tilletia caries and T. foetida). Incidence of bunt was low although it continued to be more prevalent than previously. No complete survey of the position has been made but it seems that seed is either not being dusted or being dusted inadequately. The worst affected crops were found in the same districts as last year, the Manilla (N.W.S.) and Wyalong (S.W.S.) areas particularly.

STEM RUST (Puccinia graminis tritici) was observed in trace amounts only in spite of the apparently favourable moisture conditions.

LEAF RUST (Puccinia triticina) was observed only in trace amounts.

FLAG SMUT (Urocystis tritici). Only three crops were reported to be infected. These were all of the variety Gabo and were located in the Inverell (N.T.), Gunnedah (N.W.S.) and Young (S.W.S.) districts.

LEAF SPOT OR WINTER BLIGHT (Septoria tritici) was much less severe than usual and was present only in trace amounts in the early spring in southern districts.

GLUME BLOTCH (Septoria nodorum)occurred only to a minor degree in northern districts in the leaf spot stage.

TAKE-ALL (Ophiobolus graminis) was recorded from various parts of the State and in the southern region a number of seriously affected crops was observed with estimated losses of up to 50% in some cases.

FOOT ROT (Helminthosporium sativum and Curvularia ramosa) and ROOT ROT (Fusarium culmorum) occurred widely, sometimes associated with frost injury. Although no accurate estimate of the losses has been made these conditions appeared to be less important than take-all.

LOOSE SMUT (Ustilago tritici)was observed in trace amounts in many crops.

DOWNY MILDEW (Sclerospora macrospora), which is rarely observed, was noted in a crop at Griffith (M.I.A.).

HAIL LOSS was estimated at 590,000 bushels. This is unusually low but a severe series of hail storms occurred over an area from Grenfell, through Young to Boorowa (S.W.S.).

OATS:

FROST INJURY did not appear to be important although minor losses caused by head frosting were reported in early maturing varieties.

STEM RUST (Puccinia graminis avenae) occurred in trace amounts only.

CROWN RUST (Puccinia coronata) was very severe in coastal districts in spring and autumn causing considerable damage to fodder crops, particularly during the wet weather in April and May.

SMUT (Ustilago avenae and U. kolleri) was commonly observed and as other diseases were usually unimportant, was probably the most destructive disease of crops grown for grain. A 30% infection was observed in a crop near Leeton (M.I.A.).

FOOT ROT (Fusarium culmorum) was observed to be causing injury in patches in a crop on the south-western slopes. Barley grass was suspected as a source of inoculum.

HALO BLIGHT (Pseudomonas coronafaciens). A moderate attack of this disease was observed in a 20 acre crop of Algerian at Scone (C.C.) and also in a crop at Mudgee (C.W.S.).

LEAF SPOT (Helminthosporium avenae) was very common but apparently of no consequence.

DOWNY MILDEW (Sclerospora macrospora)was observed at Leeton (M.I.A.) in a crop of Fulghum.

GREY SPECK (Manganese deficiency), which was recorded for the first time last year at Eastwood (M.A.), was not detected this season.

BARLEY:

LOOSE SMUT (Ustilago nuda) caused a 5% infection in a crop at WAGGA (S.W.S.).

SCALD (Rhyncosporium secalis) was common on the South Western Slope.

MAIZE:

RUST (Puccinia sorghi), which was unusually severe during 1952/53, was unimportant. In the specimens examined, the uredosori were again parasitised by Darluca filum. On all specimens examined the rust was Puccinia sorghi and it seems unlikely that any other species is present.

LEAF BLIGHT (Helminthosporium turcicum) was less severe than usual although some yield reduction was attributed to it in the case of early maturing hybrids on the far south coast. A plant was received from Grafton (N.C.) affected with a leaf blight caused by an unidentified species of Helminthosporium.

ROOT AND BASAL STALK ROT (Gibberella moniliformis, G. zeae and G. fujikuroi var. subglutinans) and COB AND GRAIN ROT conditions attributable to the same fungi were widespread and caused considerable damage on the north coast after the floods and wet weather.

DRY ROT (Diplodia zeae) was not recorded but undoubtedly was present in trace amounts.

HEAD SMUT (Sphacelotheca reiliana) was recorded in a crop at Kangaroo Valley (S.C.) and trace infections were observed elsewhere.

FROST INJURY caused some damage late in the season to crops at Bathurst (C.T.).

SWEET CORN:

As usual, diseases of sweet corn were of little importance. RUST (Puccinia sorghi) was present as usual and there was one record of HEAD SMUT (Sphacelotheca reiliana) from Richmond (M.A.).

SORGHUM:

KERNEL SMUT (Sphacelotheca sorghi)was recorded in isolated instances.

STEM ROT (Macrophomina phaseoli) was recorded for the first time in N.S.W. on the varieties Caprock and Plainsman at Yanco Experiment Farm (M.I.A.). The plants had produced normal heads of grain but were attached late and showed a tendency to lodge.

RED STAIN (Undet.) occurred widely as usual.

BROOM MILLET:

KERNEL SMUT (Sphacelotheca sorghi) was recorded from Gundagai (S.W.S.).

RICE:

BROWN GLUME STAIN (Physiological) occurred as usual and was often associated with a brownish discolouration of the pericarp with which species of Alternaria were associated. The condition is considered to be similar to black point and smudge of wheat.

SUGAR CANE:

Information supplied by the Colonial Sugar Refining Co. Ltd. shows that 263,249 tons of sugar cane were crushed in New South Wales during the 1953/54 season.

It is estimated that 317 tons, representing 0.1% of the total tonnage crushed, were lost through disease.

MOSAIC (Virus), which was responsible for an estimated loss of 155 tons, continued to be the most important disease.

RED ROT (Physalospora tucumanensis) was more severe than usual, causing an estimated loss of 105 tons.

FIJI DISEASE (virus) caused an estimated loss of 57 tons.

PINEAPPLE DISEASE (Ceratostomella paradoxa) was prevalent in certain areas and some losses occurred in fields in which the cane cuttings had not been treated with fungicide before planting.

CHLOROTIC STREAK (Virus) was also prevalent in certain areas but losses were too small to be worth recording.

MISCELLANEOUS GRASSES.

BENT GRASS (Agrostis tenuis).

BROWN PATCH (Rhizoctonia solani, Helminthosporium spp., Curvularia sp.) occurred widely as usual causing considerable damage to lawns and sports greens.

DOLLAR SPOT (Sclerotinia homoeocarpa) was frequently recorded in the Metropolitan Area.

SLIME MOULDS were unusually prevalent and caused some smothering.

BUFFALO GRASS (Stenotaphrum secundatum).

BLIGHT (Piricularia sp.) was unusually prevalent causing the death of patches in many metropolitan lawns.

SLIME MOULDS were unusually prevalent.

COUCH (Cynodon dactylon).

BROWN PATCH (Rhizoctonia solani, Curvularia spp., Helminthosporium spp.) occurred widely as usual.

DOLLAR SPOT (Sclerotinia homoeocarpa) also occurred but was not as prevalent as on bent grass.

RUST (Puccinia cynodontis) was severe in a pasture at Coraki (N.C.).

SLIME MOULDS, as on other grasses and pasture plants, were unusually prevalent.

CREEPING FOG (Holcus mollis):

ANTHRACNOSE (Colletotrichum graminicolum)was recorded at Mt. Wilson (C.T.) and has probably been present for many years though not previously recorded in N.S.W.

FIELD AND FODDER CROPS.

RED CLOVER (Trifolium pratense).

ANTHRACNOSE (Colletotrichum trifolii), which was recorded in N.S.W. for the first time last year, was not observed.

SOOTY BLOTCH (Dothidiella trifolii) was recorded for the second time in N.S.W. at Jamberoo (S.C.).

RUST (Uromyces trifolii fallens) occurred in isolated instances but was responsible for little damage.

CROWN AND ROOT ROT (Rhizoctonia solani and Fusarium spp. associated) was observed killing isolated plants but it is thought that in the course of a season this disease may cause considerable thinning of stands.

MOSAICS (virus) were observed to be widespread and a survey of the Hunter Valley (C.C.) last spring showed that most stands contained an appreciable percentage of virus infected plants. The symptoms are very variable, ranging from an almost imperceptible mottle to a necrotic streaking of the stems and leaflets. The growth of the plant seemed to be little affected in most cases but whether such infections shorten the lives of the plants concerned is not yet known.

LEAF SPOTS (Pseudopeziza trifolii and Stemphylium sarcinaeforme) and STEM BLACKENING (Phoma sp.) were recorded.

MANGANESE DEFICIENCY was observed in a cover crop in a citrus orchard at Griffith (M.I.A.).

WHITE CLOVER (Trifolium repens):

RUST (Uromyces trifolii trifolii-repentis). Although

white clover is usually little troubled by diseases, this is probably the most important here and in occasional springs caused a marked injury. This year, however, it was unimportant. Another rust (Uromyces flectens) was also recorded.

LEAF SPOT (Pseudopeziza trifolii) was recorded at Griffith (M.I.A.).

MOSAIC (virus) was recorded from several areas but only on isolated plants.

BIG BUD (virus) was recorded from Glen Innes (N.T.).

STEM NEMATODE (Ditylenchus dipsaci) was recorded for the first time in N.S.W. in the Berry and Nowra districts (S.C.) causing the death of many plants in low lying areas in the early spring.

SUBTERRANEAN CLOVER (Trifolium subterraneum):

RUST (Uromyces trifolii subterranei) was again very destructive on the tablelands, coast and occasionally inland to the almost universally grown Mt. Barker variety. The problem can only be overcome by the development or introduction of resistant or tolerant varieties.

MOSAIC (Virus) was widespread on the coast and tablelands, some stands showing up to 100% infection. The affected plants were dwarfed and the fodder yield considerably reduced. At Berry and Moss Vale (S.C.) in several stands the plants showed a severe dwarfing, reddening of the outer leaves and eventual death. Whether one or more viruses are concerned is not yet known.

CROWN ROT (Rhizoctonia solani and Fusarium spp.) was recorded in isolated instances.

BLIGHT (Ascochyta sp.) caused considerable injury to stands at Richmond (M.A.) and Colo Vale (S.C.).

LEAF AND PETIOLE SPOT (Cercospora sp.) was recorded for the first time from Taree (N.C.).

POWDERY MILDEW (Oidium sp.) was recorded from Lismore (N.C.).

CRIMSON CLOVER (Trifolium incarnatum):

RUST (Uromyces trifolii)and MOSAIC (Virus) were recorded from Berry (S.C.).

CLUSTERED CLOVER (Trifolium glomeratum):

RUST (Uromyces trifolii) was recorded from Gosford (C.C.) and MOSAIC (Virus) from Singleton (C.C.).

BERSEEM CLOVER (Trifolium alexandrinum):

MOSAIC (Virus) was recorded in a stand at Singleton (C.C.) and a similar range of symptoms to those observed in red clover were present.

BURR MEDIC (Medicago denticulata):

MOSAIC (Virus) was observed to be affecting 90% of plants in a pasture at Singleton (C.C.).

SPOTTED MEDIC (Medicago arabica):

LEAF SPOT (Cercospora sp.) was recorded for the first time in N.S.W. from Bega (S.C.).

LUCERNE:

STEM NEMATODE (Ditylenchus dipsaci) was much less severe in the Hunter Valley (C.C.) than last year and it is thought that the dry winter was unfavourable for its development. Some stands, however, were severely affected but plants not killed recovered later in the season. The disease was also recorded from Richmond (M.A.).

DOWNY MILDEW (Peronospora trifoliorum) occurred widely in the autumn and spring in coastal areas and was also recorded from the M.I.A. As usual it was damaging only in crops left too long before cutting or which had been checked for some reason.

STEM CANKER AND CROWN ROT (Rhizoctonia solani) was responsible for the death of some plants in most stands observed during the summer. An irrigated stand at Tamworth (N.W.S.) was almost killed out.

ROOT ROT (Fusarium sp.) was observed in a stand at Canowindra (C.W.S.) in well drained areas during warm moist weather.

CROWN ROT (Sclerotium rolfsii)was recorded on this host for the first time in N.S.W. at Warner's Bay (C.C.).

WITCHES BROOM (Virus) was widespread as usual in inland areas. Affected plants were also observed in the Hunter Valley (C.C.).

LEAF SPOT (Pseudopeziza medicaginis) and BLACK STEM (Ascochyta imperfecta) were ubiquitous as usual.

TOBACCO.

BLUE MOULD (Peronospora tabacina) continues to be troublesome.

ROOT KNOT (Meloidogyne sp.) was very severe on the Northern Tablelands and is undoubtedly the most serious disease of tobacco in N.S.W. A particularly heavy infection was also recorded in an experimental plot on levee soil at Bourke (W.D.).

LINSEED.

Only a very small acreage of this crop was sown last year on the North Western Slopes and Plains. PASMO (Sphaerella linorum) and FROST INJURY were the most important disorders.

HOPS.

No parasitic diseases have been reported from the experimental areas present in this State. Five new varieties are to be imported from England by the Division of Plant Industry and will be grown in glasshouses by the C.S.I.R.O. and tested for virus infections before being released.

PEANUTS.

No records of severe disease outbreaks came to hand although CROWN ROT (Sclerotium rolfsii) and LEAF SPOT (Cercospora personata) were reported on the North Coast.

CANE FRUITS

BOYSENBERRY:

WINTER INJURY. At Bathurst (C.T.) following lush late autumn growth in 1953 considerable low temperature damage was caused to incompletely hardened canes during winter, and the subsequent spring growth was uneven.

CITRUS FRUITS.

PHYTOPHTHORA ROOT, COLLAR AND FRUIT ROT (Phytophthora citrophthora). In coastal citrus growing districts root and collar rot activity continued until early spring 1953, particularly in lowland orchards in the Hawkesbury River districts (M.A.). Spring and summer weather was excessively dry and no further activity occurred until after rains in February, when extension of collar and root rot was reported

from some Hills district and Hawkesbury River orchards (M.A.). Mature and old trees which suffered some root infection in the wet seasons of 1949-51 continue to decline. This is particularly noticeable in the Ourimbah-Lisarow and Terrigal districts (C.C.) where a considerable acreage of trees in lowland orchards is no longer productive and cannot now be rehabilitated. The economic position of the citrus industry during the past few years has not been good enough to permit orchardists in marginal areas to afford the installation of drainage systems and the provision of the high level of fertilizer applications which might have enabled some of these trees to become productive again.

Trees that have sustained extensive collar rot injury, and this frequently occurred to an appreciable extent in blocks of reasonable vigour, have not shown much improvement. This emphasises the great importance that must be attached to any measures which will protect against this phase of the disease. Particularly does this apply to large healthy trees capable of bearing heavy crops of fruit.

Root rot continues to take a toll of citrus trees in the Murrumbidgee Irrigation Areas. There were not so many reports of tree collapse as during the previous season but there are still a large number of unthrifty trees whose condition is due to root rot.

Brown rot of fruit was reported during late winter 1953, causing substantial losses of Washington navel oranges in some lowland orchards in the Windsor and Hills districts (M.A.).

Collar rot, root rot and shoot blight were unimportant in metropolitan nurseries, except in one case where infection of lemons, Washington navel oranges and Emperor mandarins approached 75%.

BLACK SPOT (Guignardia citricarpa). The summer of 1953 was the first for some years in which conditions were ideal for the development of black spot in the main crop of Valencia fruit in the Gosford district (C.C.). During the past few seasons some development of this disease has occurred during the late spring in unsprayed or inadequately sprayed blocks of trees, but mostly the severity has not been sufficient to cause growers any real concern.

Weather conditions in 1953, together with the failure on the part of many orchardists to spray their Valencia trees because of the extremely dry season, provided conditions under which black spot development could have been expected to cause considerable losses. Severe losses actually did occur in many orchards, but little loss was sustained by growers with well sprayed trees of reasonable vigour. Though considerable fruit was lost in some orchards during November and the first week in December, growers were able to hold their crop on adequately sprayed trees even into February, when fruit fly and green mould combined to provide another hazard.

Valencias picked in early September from sprayed trees were successfully exported to Germany as refrigerated cargo, and reports from the German importers indicated that the fruit opened up in a sound condition and after distribution remained free from disease.

In the Hills district (M.A.) black spot appeared first in August in main crop Valencia oranges. Some orchards suffered heavy losses of late hanging fruit in late summer 1954.

MELANOSE (Diaporthe citri). In spite of dry conditions during the spring humidities were sufficiently high during and after blossoming to permit infection and melanose fruit blemish was very severe in coastal citrus areas on mature to old trees where dead wood had accumulated. Washington navel orange and Emperor mandarins were worst affected. Some die back of new growth also occurred.

This disease is one of the major factors contributing to poor tree condition in many coastal orchards. Apart from the serious depreciation in market prices resulting from fruit blemish, leaf and twig infections in the autumn on all varieties of citrus are responsible for much unthriftiness in older trees. The position is the more unsatisfactory since it is largely preventable. While orchardists continue to regard Melanose as a condition of minor importance losses will remain high.

Twig infections have long been recognised as a serious factor in the production of dead wood and die-back in the framework of citrus trees, particularly of old trees. At Dooralong (C.C.) however, in a planting of two year old Valencias on trifoliata stock, a serious outbreak of stem infection occurred. A feature of this outbreak was the rapid rate at which the lesions developed once established between the bark and the wood. It was not unusual for affected top growth to be removed by pruning and several weeks later for the disease to re-appear lower down the stem. There were indications that frost injury may have provided a means of entrance for the pathogen.

STEM END ROT (Diaporthe citri). Further evidence was observed of the importance of this disease in the losses frequently sustained in the curing of winter lemons.

BUTT ROT (Diaporthe citri). Young Emperor mandarin trees in orchards at Ebenezer and Pitt Town (M.A.) suffered severely as a result of Phomopsis infection in the butt and along some lower branches. Infection did not appear to follow sunscald or injury in most cases.

BROWN SPOT OF EMPOROR MANDARIN (suspected bacterial disease) was less prevalent than during the last few years both on fruit and spring and autumn growth in the lower Hawkesbury, Windsor, Hills (M.A.) and Gosford districts (C.C.), but at Lower Portland and Ebenezer (M.A.) losses of up to 80% of the crop were reported. The main infection took place in January and February, 1954, after the breaking of the spring drought. In these orchards autumn growth on young trees was badly blighted. A small scale spray trial using Zineb (zinc ethylene bis dithiocarbamate) proved sufficiently promising to justify a more extensive trial next spring.

Temperature, nutritional condition of the host plant and the degree of virulence of the pathogen all contribute to determining the degree of disease development. Little or no infection is possible with evening temperatures above 60 - 63°F. A sudden drop in night temperature conditions to 50 - 55°F. is highly conducive to disease development. A high

nitrogen status in rapidly developing leaf tissue together with a certain degree of tissue injury (such as might be expected in sudden squally weather) is highly favourable to successful infection.

SCAB (Sphaceloma fawcettii scabiosa). Main crop fruit in coastal orchards set under relatively dry conditions and scab infection was in consequence unimportant. Some infection was reported on intermediate crop lemons in Hills district (M.A.) and Gosford (C.C.) orchards.

Nursery stocks in Sydney metropolitan and Central Coast nurseries were relatively free of scab.

Some infection of foliage of mandarin nursery stock occurred at Narara Citrus Experiment Station (C.C.) following summer rain.

SEPTORIA SPOT (Septoria depressa). Only a trace of Septoria spot was seen in the Murrumbidgee Irrigation Areas and none was reported from the Upper Murray citrus districts (R.). Weather conditions during the autumn were dry and unfavourable for infection, and spraying against the disease is now generally practised.

ARMILLARIA ROOT ROT (Armillaria mellea). This disease continues to be of major importance in the Somersby (C.C.), Mangrove Mt. (C.C.) and Maroota (M.A.) districts. A case of infection of a 25 year old orange tree in a Windsor orchard (M.A.) was traced to a stump buried 5 feet below the soil surface. The land had been cleared and under cultivation for at least 100 years.

One year old trees of Valencia orange on trifoliata in a Pitt Town orchard (M.A.) were found to be heavily infected. The trees had been planted immediately after the removal of old mandarin trees which had died as the result of Phytophthora root rot. Armillaria had been of low incidence but it had apparently built up rapidly on the many dead roots remaining in the soil and the infection of the newly planted trees had been immediate.

SOOTY BLOTCH (Gloeodes pomigena) was quite severe on late hanging Washington navel oranges and Marsh grapefruit in the Hills (M.A.), Gosford (C.C.) and Hawkesbury R. (M.A.) districts, especially in lowland orchards.

GREEN AND BLUE MOULD (Penicillium digitatum and P. italicum). In the Gosford district (C.C.) post harvest losses due to mould were considerable in Valencia crops which had been allowed to hang in the trees until February. Outstanding results in mould prevention were achieved commercially by a Gosford fruit processing organisation using the sodium ortho phenyl phenate-sodium hydroxide dip developed at the Gosford Citrus Wastage Processing Laboratory.

SUDDEN DEATH (undetermined). A number of additional cases of this disease were reported from Curlwaa (W.D.), Koraleigh (W.D.), the Murrumbidgee Irrigation Areas, Dooralong (C.C.), Terrigal (C.C.), and Dural (M.A.), in almost every case in orchard blocks where the disease had previously occurred. Two trees found in early stages of infection in a Terrigal orchard were treated by removal of all discoloured wood. These trees still survive. One case of natural

recovery of an affected tree was observed at Dooralong.

SEEDLING BLIGHT (Botrytis cinerea and Sclerotinia sclerotiorum) caused minor damage during winter 1953 in one metropolitan nursery.

SCALY BUTT (virus) position unchanged.

SHELL BARK (suspected virus). Position unchanged. The severity of this disease appears to be very dependent on cultural treatment. Hard grown trees develop it at an earlier age than those well manured and watered. Hard cutting back also appears to have an accelerating effect on symptom development. In lemon stock trials at Narara (C.C.) and Terrigal (C.C.) Eureka lemon trees on Cleopatra stock this year showed an earlier and more severe development of symptoms than trees on sweet orange and rough lemon stocks.

In a block of 16 year old Eureka lemons at Maroota (M.A.) whose treatment has been extremely good, shell bark lesions had commenced, but were very small and had healed rapidly, with little or no associated yellowing and die-back.

STEM PITTING - TRISTEZA (virus complex). A block of one hundred six-year-old Valencia oranges on Seville stock at Tocumwal has been totally destroyed as the result of the spread of tristeza. The trees were thought by the grower to be on sweet orange stock but colour tests indicated that the stock was Seville.

Thirty-three year old Marsh grapefruit at Narromine, of outstanding vigour have been found to be infected with a very mild strain of stem-pitting virus. These and other selections are being tested for the protective value of the virus strain.

Spread of symptoms was reported in several Murray River orchards (W.D.).

PSOROSIS AND PSOROSIS-LIKE DISEASES (virus).

PSOROSIS A. Leaf symptoms were observed in spring growth of two twelve year old trees of Minneola tangelo at Narara Citrus Experiment Station (C.C.). No other new cases were reported.

? FLORIDA GUMMOSIS. Young grapefruit in the Wentworth area (W.D.) which last year showed severe gumming have made a good recovery. Trees of Wallent mandarin at Arcadia (M.A.) and of 31 year old Valencia oranges at Niagara Park (C.C.) last year showed considerable gumming, suggestive of this disease, accompanied by extreme yellowing and die back of affected limbs. There was a strong tendency for the blisters to be arranged in discontinuous longitudinal lines from butt to smaller branches. These trees are now almost completely recovered, and the blisters have healed.

A block of about 200, 37-year old trees of Washington navel orange at Barooga (R.) and another of similar age and size at Curlwaa (W.D.) were found which showed general psorosis leaf pattern in the spring growth. A low percentage of these trees showed gumming blisters similar to those produced on the Surprise navel orange (see previous report). The effect on growth and cropping of this evidently long standing chronic infection appears to be very much milder than that of psorosis A.

CRINKLE LEAF (Virus). This disease was diagnosed for the first time in New South Wales, affecting 16 year old trees at the Narara Citrus Experiment Station (C.C.), and 48 year old Eureka lemon trees in a Gosford orchard (C.C.). At Narara the varieties affected are Chegwyn's Lisbon, Belair and Villa Franca. Affected trees are somewhat less vigorous than uninfected trees and have a more upright growth habit. The leaf crinkling may be restricted to a few twigs only and is difficult to diagnose when both bud mite injury, melanose, scab and wind damage are also present.

ENATION (virus). This virus, recently described in California and South Africa has been found in N.S.W. on rough lemon and grapefruit. It appears to be widely distributed, but not common, and no deterioration in tree health has been ascribed to it.

KNOBBY BARK (cause unknown). A further occurrence of this disorder was reported from Peats Ferry (M.A.) again affecting rough lemon stocks.

YELLOW LEAF (Magnesium deficiency) was again very general in coastal citrus orchards, being most serious in lemon trees which had carried heavy main crops. It was also present to an extent which reduced cropping in orchards at Yocumwal (R), Pericoota (R), Curlwaa (W.D.) and Narromine (N.W.S.). In the Murrumbidgee Irrigation Areas where magnesium deficiency was previously restricted to orchards on sandy soil types it has now appeared in trees on heavier soils. Magnesium sulphate as a spray at the rate of 1 lb./tree has given an early correction of the deficiency here.

EXANTHEMA (Copper deficiency). Several orchards in the Windsor (M.A.) and Cattai (M.A.) areas were reported where severe exanthema symptoms had developed in young trees. Several cases of outstanding response of old trees to the use either of soil dressings of copper sulphate or Bordeaux mixture spray applications were observed in the Gosford district (C.C.). Here exanthema still contributes considerably to poor tree condition and unsatisfactory fruit yields, especially in trees which have been affected by Phytophthora root rot.

MOTTLE LEAF (Zinc deficiency). Mild zinc deficiency symptoms were observed in a number of orchards in the Mangrove Mountain-Somersby areas (C.C.) and at Pitt Town (M.A.). It was again general in the western division. Particularly severe development was reported on Valencia oranges at Wamoon (M.I.A.).

MANGANESE DEFICIENCY. Severe manganese deficiency symptoms became apparent by mid-summer in a replanted citrus orchard at Griffith (M.I.A.). A remarkable response was obtained to a spray of 0.5% $MnSO_4$, but the trees are not yet fully vigorous.

EMPEROR MANDARIN SCALD (Nutritional, possibly potassium deficiency). Trees in several Hills district (M.A.) orchards were reported to be affected during early Spring 1953. The condition is associated with overcropping and high nitrogen status.

WHEENY GRAPEFRUIT DIE-BACK (nutritional) was noted in orchards at Glenorie (M.A.), West Pennant Hills (M.A.) and Curlwaa (W.D.).

DRY STEM (Physiological) was widespread in orchards at Griffith (M.I.A.) and also was reported from several Curlwaa orchards (W.D.) affecting Valencia oranges held till mid-summer.

PUFFY FRUIT (Physiological). More reports of this condition than usual were received from all parts of the State.

ACID SOIL INJURY. Two year old Valencia orange trees on trifoliata in a Pitt Town (M.A.) orchard developed a tar spot condition and defoliated during winter 1953. New growth was poor. The soil was found to be extremely acid (pH 3.5 - 4.8). Similar injury was shown by young grapefruit in a Tocumwal (R.) orchard where soil pH was 3.6 and 4.4.

SALT INJURY. During spring 1953 there was a very widespread development of yellowing and defoliation of older leaves at the time when new growth was made, in orchards throughout the lower Murray River area (W.D.). The weather in this part of the State had been showery throughout the late winter and early spring and it is possible that surface salt had been washed into the root zone at a critical time. In the Murrumbidgee Irrigation areas cases of salt toxicity occurred, with readings of 2% or more NaCl, dry weight of leaves.

"WINTER YELLOWING". Trees affected with this disorder during winter 1953 mostly made a good recovery during the subsequent summer. Autumn 1954 provided excellent and prolonged growing conditions and young trees again made vigorous growth. Yellowing was again reported from orchards at Monak (W.D.), Boeuil Creek (W.D.) and Coomealla (W.D.) and in the Windsor (M.A.) and lower Hawkesbury River districts (M.A.), but was not reported from Gosford (C.C.) and very little occurred in the Murrumbidgee Irrigation areas. The number of trees affected has not been large. This season the yellowing commenced well before the onset of cold temperatures and it is now clear that the condition is distinct from true cold chlorosis. As in 1952 young trees 2-5 years old which have made vigorous growth in the previous autumn showed the condition. It is associated with a high level of nitrogen and absence of crop.

SEVILLE DECLINE (cause unknown). A block of about 5 acres of 11 year old bittersweet Sevilles and ½ acre of smooth Sevilles in a Colo orchard (M.A.) showed the onset of yellowing and decline during autumn 1953. A block of older trees cut back last spring showed recovery, the extent of which depended on the condition of the trees at the time of pruning. These trees, which had been in the earliest stages of decline, have responded slowly, whereas those in which the decline had developed to its final stage were making good growth.

ROUGH LEMON STOCK DECLINE (suspected virus). An extension of this disease occurred in two Colo orchards (M.A.).

LIME INDUCED CHLOROSIS (Alkaline soil induced) was reported from orchards at Bourke (W.D.) and Koraleigh (W.D.).

FRUIT DROP (Dry soil conditions). Heavy shedding of young fruit occurred in most coastal orchards during late spring 1953, because of continued very dry weather throughout

the winter and spring. As a result crops, particularly of Washington navel oranges, were light except where irrigation had been possible.

SMALL FRUIT (cause not known, suspected wrongly timed oil sprays). Valencia orange trees in several Barham (R.) orchards produced a proportion of very small fruit (1-1½" diam.) in last season's crop. Individual trees carried up to 50% of their crop in small sizes. These matured normally. A similar condition was noted in a Narromine orchard (N.W.S.).

POME FRUITS.

A favourable apple season was experienced in all districts and a record crop was harvested. Pear yields generally were below average due to unfavourable weather for pollination and to frost in some locations.

APPLE:

BLACK SPOT (Venturia inaequalis). Despite a plentiful supply of ascospore inoculum, spring infection was very light in most localities where adequate protective spraying schedules were followed. The hot dry summer prevented further development and most growers ceased spraying. However, with the onset of autumn rains, late secondary infection on unprotected fruit was heavy, and black spot lesions continued to appear in stored fruit. The disease again occurred on the Murrumbidgee Irrigation Areas.

POWDERY MILDEW (Podosphaera leucotricha). Infection was widespread in tableland districts especially on Jonathan, Rome Beauty and Gravenstein. In the New England region this disease is gradually being brought under satisfactory control with the more widespread adoption of sulphur sprays on the most susceptible varieties, coupled with more severe pruning methods. Mature-leaf infection occurred in an orchard of unsprayed non-bearing Gravensteins at Cobbitty (S.C.).

LIMB CANKER AND DIEBACK (Botryosphaeria ribis). Despite predisposing heat-wave conditions in mid-December few new lesions were observed in the early maturing varieties in the Metropolitan Area. There was some extension of old cankers and much secondary invasion by Schizophyllum commune. The disease was not reported from other districts.

RIPE ROT (Gloeosporium sp.) caused heavy losses in a few orchards in the Metropolitan Area. Willie Sharp was the variety most commonly affected.

BITTER PIT (Non parasitic) was prevalent in early maturing and midseason varieties in the Metropolitan area and also occurred in tableland and inland areas in trees which carried light crops.

WATER CORE AND CRINKLE (Non parasitic). These conditions were frequently encountered following the mid-summer heat-wave.

APPLE MOSAIC (Virus). Symptoms were much more noticeable than usual. It is believed that the abnormally cool spring weather favoured symptom expression. This disease is becoming more prevalent in young trees.

PEAR:

BLACK SPOT (Venturia pyrina). Infection paralleled that of apple scab this season, with heavy late secondary infection on the later maturing varieties. Infection was severe on the Murrumbidgee Irrigation Areas where no control measures were adopted.

BLAST (Pseudomonas syringae). Heavy infection, particularly on the variety Packham's Triumph, occurred at Orange (C.T.). Buds and blossoms were blighted, some spurs were killed and lesions occurred on shoots, leaves and fruits. In many instances the trees had been sprayed with Bordeaux Mixture 15-15-100 plus half a gallon of white oil at "green-tip" and "spur-burst" followed by thiram at "white-bud", "petal-fall" and"1st cover". Infection by this organism may account for the very poor setting of Packham's Triumph pears at Orange and in some other districts this season.

FLECK (Fabraea maculata) caused defoliation of unsprayed trees at Dundee (N.T.).

QUINCE:

FLECK (Fabraea maculata) again caused severe premature defoliation. On the Murrumbidgee Irrigation Areas, where quince orchards were unsprayed because of uneconomic returns, infection was severe.

BROWN ROT (Sclerotinia fructicola) was prevalent on fruit left unharvested on the Murrumbidgee Irrigation Areas.

STONE FRUITS.

Good stone fruit crops were set in all districts but dry summer conditions caused size reduction in non-irrigated early and mid-season varieties. Conditions later were more favourable and high yields were obtained from late maturing varieties. Record yields of apricots and peaches were obtained on the Murrumbidgee Irrigation Areas.

ALMOND:

SHOT HOLE (Clasterosporium carpophilum). Infection was severe wherever control measures were inadequate. Shoot blighting occurred on the Murrumbidgee Irrigation Areas in February.

APRICOT:

BACTERIAL CANKER (Pseudomonas syringae). Infection was at a low level this season on the Murrumbidgee Irrigation Area. Young plantings elsewhere were only slightly damaged.

BROWN ROT (Sclerotinia fructicola). Slight blossom blighting occurred on the Murrumbidgee Irrigation Areas. Losses of mature fruit were negligible.

SHOT HOLE (Clasterosporium carpophilum). Heavy losses were sustained on the Murrumbidgee Irrigation Areas where a record tonnage of apricots was received at the canneries and approximately 1,000 tons rejected because of shot hole infection. The disease was prevalent throughout the State.

FRECKLE (Cladosporium carpophilum). Heavy infection occurred in coastal regions wherever control measures were not practised. Thiram continues to give excellent control and is non-phytotoxic.

BLACK HEART (Verticillium dahliae)continues to be a problem on the Murrumbidgee Irrigation Areas. However, most growers are now careful to avoid planting apricots in land known to have carried tomatoes previously and the number of new occurrences of the disease is declining.

RUST (Puccinia pruni-spinosae). Heavy infection and premature defoliation occurred in coastal regions.

ROOT ROT (Phytophthora cinnamomi). Following the February rains (approx. 14 inches) losses of young trees from root rot occurred along the Hunter River (C.C.) and at Kurrajong (C.C.).

LEAF CURL (Taphrina deformans) was more prevalent than usual.

CHERRY:

BACTERIAL CANKER (Pseudomonas syringae). Heavy infection occurred on young trees throughout the Orange district (C.T.). In one orchard at Orange very severe shoot blighting occurred on the vigorous new growth produced by old trees which had been cut down for reworking. Fruit infection was fairly general but not severe.

BROWN ROT (Sclerotinia fructicola) caused no losses this season. Conditions for the cherry harvest were ideal.

CHERRY LEAF SPOT (Coccomyces hiemalis). Further surveys this season again failed to detect any infection, and it now seems certain that the disease has been eradicated.

NECTARINE:

BROWN ROT (Sclerotinia fructicola)caused no losses in

tableland areas this season as all nectarines were harvested during the hot dry midsummer period. Some losses occurred in midseason varieties in coastal districts.

RUST (Puccinia pruni-spinosae) was of no consequence in tableland areas but premature defoliation was common in coastal orchards.

LEAF CURL (Taphrina deformans). Infection was heavy wherever control measures were neglected.

FRECKLE (Cladosporium carpophilum) was common on unsprayed fruit in coastal regions.

SHOT HOLE (Clasterosporium carpophilum). Some bud-blighting occurred at Orange (C.T.).

PEACH:

BROWN ROT (Sclerotinia fructicola). Losses were negligible on the Murrumbidgee Irrigation Areas and in most other districts. However, there was some infection in the later maturing varieties in tableland districts and some severe losses occurred with mid-season varieties in coastal regions.

RUST (Puccinia pruni-spinosae) again caused premature defoliation in coastal regions. However, it was of no consequence in tableland and inland areas.

LEAF CURL (Taphrina deformans). Heavy infection occurred wherever control measures were neglected or imperfectly applied.

FRECKLE (Cladosporium carpophilum). Infection was heavy in coastal areas wherever control measures were neglected. No infection was observed in tableland or inland orchards.

SHOT HOLE (Clasterosporium carpophilum). Severe fruit infection occurred in a few orchards on the Murrumbidgee Irrigation Areas and heavy shoot infection was observed in orchards at Orange (C.T.).

ROOT ROT (Phytophthora cinnamomi). Following heavy rains in February many young trees died or were severely damaged in coastal regions. In one instance the fungus was isolated from a branch canker which was a continuation of a trunk canker on a tree at Castle Hill (M.A.). Evidence suggests that the disease is being distributed from nurseries.

CROWN GALL (Agrobacterium tumefaciens) continues to be a problem in nurseries. On the Murrumbidgee Irrigation Areas this disease was suspected to be the cause of declining vigour in several peach blocks in the 12 to 15 years age group.

POWDERY MILDEW (Sphaerotheca pannosa). Trace infection on fruit was seen in many orchards on the M.I.A., but the only instance of severe infection occurred where there was a prolific source of inoculum on Dorothy Perkins rose adjacent to the orchard.

PLUM:

BROWN ROT (Sclerotinia fructicola). Some losses occurred in late maturing varieties in coastal districts. Some infection was noted on prunes on the Murrumbidgee Irrigation Areas.

RUST (Puccinia pruni-spinosae). Slight infection on prunes occurred late in the season (March to May) at Young (S.W.S.) and on the Murrumbidgee Irrigation Areas. Heavy infection and premature defoliation occurred on plums (particularly the early maturing variety Wilson) in coastal districts.

SHOT HOLE (Clasterosporium carpophilum). Leaf infection was general. Severe cankering of shoots occurred on a flowering plum at Corowa (R.).

TROPICAL FRUITS.

BANANA:

BUNCHY TOP (Virus). Records compiled by the Division of Horticulture show that a total of 3,164 infected plants were found during the year, an increase of 737 plants on the previous year's figure. The area planted to bananas was 28,164 acres an increase of 1932 acres. Bunchy top records for the four preceding years were: 1949-50, 5385; 1950-51, 3831; 1951-52, 3654; 1952-53, 2427. Most of the increased incidence was in the Tweed River district (N.C.).

A further inspection was made of the Yarrahappini district (N.C.) without any infected plants being found. A thorough inspection of the Clarence River district, including home gardens as well as commercial areas, brought to light one infected plant. The last outbreak in the Clarence River district was in January, 1945, in the same plantation.

LEAF SPOT (Cercospora musae). Losses from leaf spot were again severe in many plantations in the Tweed and Brunswick districts (N.C.). There was a further increase in the number of plantations which were sprayed although a small proportion only of plantations receive protective treatment.

PASSIONFRUIT:

WILT AND ROOT ROT (Phytophthora cinnamomi) was recorded from a number of localities on the Central Coast and North Coast and in the Sydney Metropolitan Area during the year.

WOODINESS (Virus). This disease was quite widespread and was recorded from several Sydney Metropolitan gardens and coastal plantations.

ROOT ROT (Phomopsis sp. associated): During the early winter of 1954, a passionfruit plant from Kenthurst (M.A.) showing severe root rot, was found to have a species of Phomopsis associated with the rot. The organism was isolated from the inside of the root and was also seen to be fruiting on the outside of the infected area.

FUSARIUM WILT (Fusarium oxysporum). No further records of this disease were made during the year.

MISCELLANEOUS FRUITS.

GRAPES:

DOWNY MILDEW (Plasmopara viticola). Very dry late spring and summer weather prevented any serious downy mildew infection in coastal, Murrumbidgee Irrigation Areas and Lower Murray (W.D.) vineyards. Leaf attack occurred in late summer in coastal vineyards where spraying was inadequate.

BLACK SPOT (Elsinoe ampelina). Dry late winter and spring weather helped to control black spot infection in coastal vineyards. In the lower Murray River district (W.D.) showery weather continued throughout late winter and early spring and black spot started to develop to a serious degree in a number of sultana vineyards. This was controlled by T.M.T.D. sprays and by subsequent dry hot weather, and fruit losses were not serious. Pitting of canes, however, will make early spraying necessary next season. At Koraleigh (W.D.) where early black spot has always been more serious than in the lower Murray settlements, T.M.T.D. sprays have been used now for three years and practically no black spot was seen. In the Murrumbidgee Irrigation Areas black spot was prevalent on the susceptible Cornichen and Ohanez varieties. Here also T.M.T.D. sprays have given better results than Bordeaux mixture.

POWDERY MILDEW (Unicinula necator) was less noticeable than usual in lower Murray vineyards (W.D.).

BITTER ROT (Melanconium fuligineum). A rather heavy infection of bitter rot occurred in a Cessnock (C.C.) vineyard affecting principally the soft skinned Madeira variety. The stronger skinned Riesling was only slightly affected. These vines had received fewer than average Bordeaux sprays during the spring because of severe drought conditions and the outbreak followed drought breaking rains in January and February. In N.S.W. bitter rot is generally restricted to unsprayed Isabella varieties in home gardens.

STUNT (virus disease of Black Shiraz). No new records.

DYING VINES (Undetermined). Fairly numerous reports were received from Koraleigh (W.D.) and Curlwaa (W.D.). Grafts made two years ago from vines affected with this disease to healthy vines have not resulted in any disease development and it is now considered unlikely that a virus is involved.

LEAF SCORCH (Suspected K. deficiency). This disorder was very prominent in Cessnock (C.C.) vineyards, affecting principally the Riesling varieties. Very little fruit was produced by badly affected vines and cane vigour was much reduced.

A block of vines given trial applications of potash fertilizer 3, 4 and 5 years ago are free of scorch.

FAILURE TO RIPEN PROPERLY. Black Muscat grapes in the Molong (C.T.) area were very generally affected. The berries failed to attain full sugar and a proportion of them shrivelled and the fruit stems dried out before maturity. The condition is attributed to lower than average temperatures during late summer and early autumn.

LEAF MOTTLE (Undetermined). A vineyard of Muscat grapes at Fairfield (M.A.) which showed this condition very badly two years ago was free of mottle this season and the vines were vigorous and cropped heavily. Dolomite had been used 15 months ago.

A VIRUS DISEASE. Vines affected with this disorder, reported last year from Cessnock (C.C.), completely recovered and no extension occurred during 1953/54.

DELAYED DORMANCY. Sultanas at Pomona (W.D.) and Monak (W.D.) affected with this disorder in 1952/53 almost all completely recovered. The condition again cropped up at Coomealla (W.D.) in spring 1953. Only two year old vines which had grown late into the previous autumn were affected.

WASTAGE (Penicillium spp.). A consignment of Ohanez grapes from Griffith (M.I.A.) for Singapore was rejected at Melbourne because of mould wastage, probably induced by rough handling.

MULBERRY:

LEAF SPOT (Septogloeum mori). Infection was less severe in most inland areas but rather more prevalent on the coast than usual.

BACTERIAL BLIGHT (Pseudomonas mori) was prevalent in coastal districts.

OLIVE:

RIPE ROT (Gloeosporium fructigenum). Severe infect'on was reported from a metropolitan planting.

STRAWBERRY:

No unusual disease developments were noted in this crop in 1953/54.

WALNUT:

BACTERIAL BLIGHT (Xanthomonas juglandis)occurred throughout the state but the degree of infection was lower than usual, especially in tableland districts.

ORNAMENTALS.

ANTIRRHINUM:

RUST (Puccinia antirrhini)was widespread and destructive causing severe damage to snapdragon plants throughout N.S.W. Investigations on the race of rust present indicated that it was similar to that known in America as race 2. All varieties inoculated have proved susceptible to this race.

Studies on uredospore longevity indicated that under conditions of low temperature and relative humidity, uredospores could remain alive for 116 days and that as both temperature and humidity rose, their longevity decreased. It would thus seem possible, with air travel and the dry conditions prevailing in seed samples, that viable uredospores could be introduced with seed and dusted accidentally on to healthy plants.

The initial direction of spread of rust in N.S.W. during its first three months was to the south-west and this has been correlated with the direction of the prevailing winds during that period, indicating that wind-borne uredospores were the main initial agents of spread of the disease. Later, transport of diseased seedlings to other parts of the State and to other States established foci of disease from which further spread by wind-borne spores could occur.

SCLEROTINIA STEM ROT (Sclerotinia sclerotiorum). This disease was recorded for the first time in N.S.W. on a plant growing at Taree (N.C.). The disease developed on the stem well above soil level, producing a wet rotted area with the development of the white mycelium and black sclerotia of the fungus.

AZALEA:

ROOT ROT (Phytophthora cinnamomi) caused losses of potted plants in several metropolitan nurseries. Some of the newer introductions appear to be very susceptible.

BEGONIA:

POWDERY MILDEW (Oidium sp.) reported for the first time last year is now widely distributed throughout coastal

N.S.W. and has caused severe damage particularly to Rex and some tuberous types.

CHRYSANTHEMUM:

STUNT (virus). Virus infection continues to increase in importance in commercial plantings. The identity of the viruses involved has not yet been established.

CYPRESS (Cupressus spp.):

CANKER (Monochaetia unicornis) caused heavy losses of young trees in a Bathurst (C.T.) nursery and was recorded from private gardens in a number of coastal and tableland localities.

DAPHNE:

COLLAR ROT (Phytophthora parasitica) was reported from many parts of N.S.W.

DIMORPHOTHECA:

BLIGHT (Spotted wilt virus) caused the complete failure of a crop of Dimorphotheca aurantiaca at Dural (M.A.).

GLADIOLUS:

Dry weather during spring and summer resulted in reduced losses from leaf diseases and Sclerotinia in early coastal plantings. In late plantings Stemphylium and Botrytis leaf spot were fairly prevalent.

YELLOWS AND BASAL BROWN ROT (Fusarium oxysporum f. gladioli) was reported from a number of metropolitan nurseries. In all cases corms recently imported from Victoria were involved.

SCAB (Pseudomonas marginata). An unusually severe outbreak of collar rot was reported from a Schofields (M.A.) flower farm following the planting of undipped yearling corms.

SPOTTED WILT VIRUS. This disease was noted for the first time in N.S.W. in a metropolitan flower farm. Infection was restricted to the variety Mighty Monarch. Symptoms were extreme foliage yellowing and blighting of the flower spike. The corms produced by infected plants died during storage.

ROSE:

BLACK SPOT (Diplocarpon rosae) developed severely in coastal and tableland areas following the breaking of the spring drought. It was also prevalent in the Murrumbidgee Irrigation Areas, where there has been a noticeable increase in incidence in recent years.

MILDEW (Sphacrotheca pannosa) developed early in the season both in coastal and inland areas.

ROSE WILT (virus) was less important than in the previous season but was noted in a number of metropolitan nurseries and at Griffith (M.I.A.). Die-back due to this cause was, however, fairly general in older planting in the metropolitan area.

BUD DROP (unknown cause). Roses of the variety Orange Triumph were reported from several metropolitan tableland localities to be suffering from bud drop during late spring. A high and possibly unbalanced level of nitrogen appeared to be associated.

SAINTPAULIA (African Violet):

MOSAIC (Virus). A mosaic condition was found to be widespread in N.S.W. collections. It appears to be spread rather easily under glass-house conditions, and causes some reduction of vigour over winter months as well as very conspicuous leaf blemish. Its relationships have not been determined yet.

STOCK:

BLACK ROT (Xanthomonas incanae). Wet conditions in midsummer favoured the development of this disease in early crops, and losses in metropolitan flower farms were heavy.

MOSAIC (Virus) was very prevalent in metropolitan flower farms. It was also reported from the Murrumbidgee Irrigation Area.

RANUNCULUS:

SHOOT BLIGHT (Virus) caused very heavy mortality amongst ranunculus plantings at Carlingford (M.A.) and Rogan's Hill (M.A.) in late winter 1953.

SWEET PEA:

BLIGHT (Virus). A virus probably identical with that described by Stubbs in broad bean caused the complete failure of a sweet pea crop at Epping (M.A.) during autumn 1954 and a similar condition has been reported from other metropolitan crops. Spotted wilt virus, which causes an almost indistinguishable condition, has not been troublesome in sweet pea crops for more than 4 years.

VEGETABLES.

BEANS:

BEAN SEED CERTIFICATION: The New South Wales Bean Seed Certification Scheme was continued for the eleventh successive year in co-operation with the Division of Plant Industry. A total of fifty-three crops on 232 acres was passed for certification, applications having been lodged for an initial 321½ acres. The estimated yield of certified seed was 3,940 bushels, made up of 2,660 bushels (67.5%) of Brown Beauty, 440 bush. of Wellington Wonder, 340 bush. of Windsor Longpod, 260 bush. of Tweed Wonder, 130 bush. of Hawkesbury Wonder and smaller quantities of the varieties Clarendon Wonder, Goward's Special and Richmond Wonder. Of the seventeen crops rejected, fifteen were rejected because they had been picked for the green bean market, one on the presence of anthracnose and one because of severe development of scald.

ANTHRACNOSE (Colletotrichum lindemuthianum). Only one case of bean anthracnose was seen in bean crops growing on the South Coast of N.S.W. for the production of certified seed during the 1953-54 season.

This case was probably due in part to the comparatively dry season and the widespread use of lines of the variety Brown Beauty resistant to strain 1, the strain present in that area. In the autumn of 1954, however, quite severe anthracnose was experienced in green bean crops on the North Coast of N.S.W. during the very wet weather in the month of May. Plants in the field were heavily attacked and pods were severely spotted. Several consignments of beans arriving at the Sydney Markets during this period were also found infected with anthracnose and in some cases had to be rejected.

Work has continued on the search for bean varieties resistant to both of the strains of the anthracnose fungus known to be present in N.S.W. A field selection from a line of Hawkesbury Wonder has shown marked resistance to strain 1 (the most widespread one) and may represent a natural cross between Hawkesbury Wonder and some other resistant variety (such as Tweed Wonder or Wellington Wonder). This selection is slightly taller and more prolific than Hawkesbury Wonder and further work on it will probably yield another good commercial variety resistant to strain 1.

Many cross-bred lines have also been tested for anthracnose resistance in glasshouse inoculation tests. Introductions of seed of varieties reported resistant to various strains of anthracnose overseas have also been made and preliminary tests indicate that several of these may be quite susceptible to the strains present here.

RUST (Uromyces phaseoli typica). Over the past two or three years, rust of dwarf beans has become increasingly severe in New South Wales, especially in coastal areas. Many crops have suffered considerable defoliation and more rust pustule development on bean pods was seen this season. In co-operation with the Division of Plant Industry, work has begun on testing numerous crosses for rust resistance in glasshouse inoculation tests. This work is integrated with the breeding programme for anthracnose resistance.

HALO BLIGHT (Pseudomonas phaseolicola). Comparatively few records of this disease were made during the year. A severe outbreak occurred in overhead irrigated beans on the Murray Irrigation Area near Mildura (W.D.) in the early summer of 1953 and there were other records from Walcha (N.C.) and the Sydney Metropolitan Area.

TRANSPORT DISEASES

A number of consignments of beans arriving at the Sydney Markets were rejected during the year because of the severe development of pod rot diseases. ANTHRACNOSE was common and POD ROT caused by Sclerotinia sclerotiorum was responsible for severe damage to several consignments. RUSSET BREAKDOWN, the cause of which is not known, also caused damage in a number of consignments from the North Coast and Queensland.

BEET ROOT, FODDER BEET AND SILVER BEET.

BEET EELWORM DISEASE (Heterodera schachtii). There were no further records of attack by this eelworm following last year's outbreak at Milperra (M.A.) and it appears that this parasite is of very restricted occurrence in the Sydney Metropolitan Area. Preliminary host range tests with the eelworm obtained from beetroot at Milperra have shown that the eelworm is capable of completing its life cycle on bean, beet, brussels sprouts, broccoli, cabbage, cauliflower, kohl rabi, radish, rape, rhubarb, silver beet and turnip. These plants are all listed by overseas workers as hosts for the beet eelworm which occurs in their respective localities.

CERCOSPORA LEAF SPOT (Cercospora beticola). This disease was prevalent, as usual, in commercial crops and home gardens during the late summer and autumn. There were no records of severe damage in commercial crops.

ROOT KNOT (Heterodera marioni) was recorded a number of times during the year particularly on silver beet where this crop was grown on lighter soils. Overall loss was small.

PHOMA LEAF SPOT (Phoma betae). The leaf spotting stage of this disease was recorded on beetroot once during the year, in the Sydney Metropolitan Area. Damage was confined to the older, outer leaves. This disease is of rare occurrence in this State and no evidence of the more severe stages of Phoma betae attack, i.e. seedling black root and fleshy root rot, was observed.

BACTERIAL BLIGHT (Pseudomonas aptata). Specimens of fodder beet received from Taree (C.C) were found to be affected with Bacterial Blight. This represents the first record of this disease on this crop in New South Wales. Ps. aptata has previously been recorded in this State on nasturtium (Tropaeolum majus). The disease had been evident in the crop to some extent before heavy frosts in late May, after which it increased considerably.

CRUCIFERS.

BLACK ROT (Xanthomonas campestris) was recorded in crucifer crops from several localities in coast and tableland areas during the year. Damage caused was not generally severe, being confined mainly to the outer leaves of the plants.

BORON DEFICIENCY. Several cases of boron deficiency in crucifer crops were reported during the year. In turnips, the typical water core symptom of boron deficiency was recorded from a number of places on the Southern Tablelands and from the Sydney Metropolitan Area. Turnips from these crops appeared more spongy and less palatable than healthy ones. Boron deficiency was also reported in cauliflowers at Robertson (S.T.), Armidale (N.T.) and Albion Park (S.C.).

PHYTOPHTHORA ROOT ROT (Phytophthora megasperma). This disease, which was recorded for the first time on cauliflower in N.S.W. last year, did little damage at Windsor (M.A.) during this season. It was, however, general on poorly drained ground at Windsor (M.A.) and Castle Hill (M.A.). The reduction in the development of the disease this season was due to the fact that, although floods did occur, they were earlier than the previous year and the ground had dried out by the time the bulk of the crop was planted out.

WHITE LEAF SPOT (Cercosporella albo-maculans) was prevalent in field turnips in the Hastings, Manning and Macleay River areas (C.C.) causing severe checking in some crops although the disease was retarded eventually by drier colder conditions.

Other crucifer diseases reported during the year included downy mildew (Peronospora parasitica) on Cabbage at Coff's Harbour (N.C.), turnip black leg (Phoma lingam) at Braidwood (S.T.) and whiptail of cauliflower (Molybdenum deficiency) at Pennant Hills (M.A.).

CUCURBITS.

FUSARIUM FOOT ROT (Fusarium solani f. cucurbitae). This disease was recorded only once during the year, at Upper Burrag-orang (S.C.). The disease had occurred previously on the property in hot, dry seasons. The infection, 2% of 35 acres, appears to have arisen from the planting of infected seed which had been saved by the grower. Nearby cucumber and rockmelon crops were unaffected.

An uncompleted experiment on the longevity of the fungus in infested soil has shown that, under local conditions, the fungus has now survived 27 months in a sandy loam in the absence of susceptible plants.

DOWNY MILDEW (Pseudoperonospora cubensis). Observations made on a rockmelon trial at Gosford Citrus Research Station (C.C), which trial included a number of varieties and crossbreds selected for resistance to downy mildew, indicated that D.P.M.R. Gos. 08/1 was resistant; P.M.R. D_2, Hales Best x P.M.R. 45 and Hales Best were moderately resistant and Texas Resistant, P.M.R.

No. 5, P.M.R. No. 8, Honeydew M.R. 60, M.R. 50/15, Spanish Gold x P.M.R. 50. F2 1937-11, Spanish Gold x P.M.R. 50 F2 1938 and Jade Beauty were moderately susceptible.

ANTHRACNOSE (Colletotrichum lagenarium). In a commercial seedsman's variety plots in the Manning River area (C.C.) and at Coonabarabran (N.W.P.), it was noted that the Purdue University Strain of Hawkesbury Wilt Resistant Watermelon was much more severely affected with anthracnose than the local strain of this variety. This greater susceptibility of the Purdue University strain had been noted in watermelon crops in the Manning River area last season.

FUSARIUM WILT OF WATERMELON (Fusarium oxysporum f. niveum) and SALT INJURY. A number of crops in the Murrumbidgee Irrigation Area showed a very wilted and poor condition during the year. The varieties concerned were the wilt resistant varieties Hawkesbury Wilt Resistant and Klondike, and the variety Market Wonder. Isolations from these plants yielded the Fusarium Wilt organism. However, a salt analysis on a number of the plants showed salt contents of up to 3.8% and it appeared that salt toxicity may have predisposed the plants to attack by Fusarium.

POWDERY MILDEW (Erysiphe cichoracearum) was prevalent in cucurbit crops in summer, as usual.

MOLYBDENUM DEFICIENCY. There were a few records on coastal acid soils.

EGG PLANT.

WILT (Verticillium dahliae). There was one record of this disease, from Barham (R.).

GLOBE ARTICHOKE.

MOLYBDENUM DEFICIENCY was recorded for the first time in this State on this plant at Artarmon (M.A.) during the year.

ROOT KNOT (Meloidogyne sp.) was recorded for the first time in this state on Globe Artichoke at Double Bay (M.A.) during the year. Infection was very heavy and the galls were large.

LETTUCE.

SPOTTED WILT (Tomato Spotted Wilt Virus). Infections by this virus were widespread on lettuce crops during the year and many records were made both in spring and autumn crops. Spring crops on the coast showed varying losses. In the Taree area (C.C.) spotted wilt was very prevalent and caused considerable losses in many crops particularly home gardens.

In one commercial planting at Taree spotted wilt occurred in every bed (Imperial White Seeded and Great Lakes), infection being up to 50% in some beds. In the autumn grown crops spotted wilt was recorded in the Sydney Metropolitan Area, at Orange (C.T.) and at Dubbo and Forbes (C.W.S.).

MOLYBDENUM DEFICIENCY. Moderate to severe losses due to molybdenum deficiency in lettuce were recorded from Taree (C.C.) in acid soils. One grower lost about 16,000 plants and in one bed 80% of the lettuce failed. Experiments in this area, where molybdenum deficiency has been recorded on a number of crops, have established definitely that application of molybdenum to the soil will enable vegetables to be grown successfully. During the season lettuce plants in the Taree area, which had been watered with a solution of sodium molybdate, showed a definite response and were a satisfactory green colour whereas untreated plants were stunted and yellow and showed a marginal leaf scorch. Subsequent chemical analysis showed that the treated plants contained up to five times the molybdenum that was present in untreated plants.

A number of records of molybdenum deficiency of lettuce in the Sydney Metropolitan Area were also made.

DOWNY MILDEW (Bremia lactucae). There were few records of this disease either in spring or autumn crops.

MUSHROOM.

MILDEW OR COB-WEB (Dactylium dendroides). This disease was recorded for the first time in New South Wales, at Lilyvale (M.A.), during the year. The crop concerned was being grown in a tunnel and it appeared that the fungus had been introduced in the casing soil and the infection had been encouraged by high humidity. Prompt application of a 4% formalin spray to the affected areas of the beds had kept the infection confined and only about 1% of 12,000 square feet was affected.

BUBBLES (Mycogone perniciosa) and BROWN SPOT (Verticillium sp.) were recorded once during the year, in a crop at Kenthurst (M.A.). Generally, the outdoor ridge bed system of growing is practised in the Sydney area and parasitic diseases contribute little to yield reductions as conditions of high humidity and poor ventilation do not obtain in these beds for any length of time.

ONION.

LEAF SPOT AND TIP BLIGHT (Botrytis ? squamosa). Specimens of onion seedlings received from Mittagong (S.T.) in the winter of 1954 were affected with a tip blighting and white spotting of the leaves. A fungus of the genus Botrytis, probably B. squamosa, was isolated from the leaves. This fungus has not previously been recorded in New South Wales.

A regular Bordeaux Mixture 1-1-10 spray held the disease

in check until three days wet weather were experienced and then the disease progressed quickly resulting in an estimated loss of 500,000 seedlings.

Other onion diseases recorded during the year included DOWNY MILDEW (Peronospora destructor), which was quite general in occurrence, and WHITE ROT (Sclerotium cepivorum) recorded from Toronto (C.C.).

PEA.

MYCOSPHAERELLA BLIGHT (M. pinodes) and ASCOCHYTA DISEASES (A. pinodella and A. pisi). There were a few records of Mycosphaerella Blight during the year, from the Sydney Metropolitan Area, but no records of severe damage. ASCOCHYTA LEAF SPOT (A. pisi) occurred extensively in some canning crops in the Murrumbidgee Irrigation Area in November. These crops had been watered late. There were no records of ASCOCHYTA FOOT-ROT (A. pinodella).

BACTERIAL BLIGHT (Pseudomonas pisi). In the central tablelands in September-October, bacterial blight occurred in quite a number of pea crops and was more severe than in the previous season. In one crop infection was very general and, when inspected, indicated the possibility of wiping out the whole crop. One record was also made from the Sydney Metropolitan Area.

DOWNY MILDEW (Peronospora viciae) was recorded from a number of localities throughout the State. Infection in spring crops in the Murrumbidgee Irrigation Area was limited to odd plants and did not seriously depress yields. In crops at Bega (S.C.) a moderately heavy infection occurred during flowering and early podding in November and several plants were killed as a result of attack.

POWDERY MILDEW (Erysiphe polygoni) was also recorded from many localities. Heavy infections sufficient to depress yields were recorded from Dapto and Mt. Kiera (S.C.).

POTATO.

LEAF ROLL (Virus). Tableland crops which were inspected by officers of the Division of Plant Industry were practically free of leaf roll infection. On the northern tablelands, no crops submitted for certification were rejected for excess leaf roll (1% at the second inspection). Rejection of crops submitted for certification in this area in 1952/53 was also nil. On the central tablelands also, no crops submitted for certification this season were rejected for excess leaf roll (2.2% in 1952/53). 0.4% of the acreage submitted on the southern tablelands was rejected for excess leaf roll (0.7% in 1952/53).

Occasional infections by the leaf roll virus were noted in spring and autumn crops on the coast but no severe losses were reported.

PINK ROT (Phytophthora erythroseptica) was recorded for the first time in New South Wales at Hanging Rock (N.W.S.) in late summer. Infection in individual crops varied from 35% to 3%. The most severe losses occurred in the lower lying sections of the crops with much less damage in the better drained sections. Climatic conditions in this area, particularly during the latter part of the growing season, favour the maintenance of a high soil moisture content thus encouraging the disease. The Hanging Rock area is a relatively new potato producing area and it would appear that P. erythroseptica is a normal soil inhabitant in the locality. The disease has almost certainly been present in previous crops but had been confused by the growers with late blight.

BLACKLEG (Bacterium carotovorum). In contrast to the previous season, blackleg did not contribute significantly to yield reduction in spring crops on the coast where, this season, very dry conditions were experienced. There was a slight incidence of blackleg in the main tableland crops but, here also, losses were negligible.

PURPLE TOP WILT (Tomato big-bud virus). A slight incidence of this disease was recorded in coastal spring crops. Although overall loss of marketable tubers in these crops was small, a noteworthy record was made in one crop at Maitland (C.C.). In this crop 264 infected plants were counted in a row of 350 plants. This row was planted nearest to a lucerne crop in which symptoms resembling witches broom were noted. The big-bud virus vector (Orosius argentatus) was present in the potato and lucerne crops in the area.

Slight purple-top wilt infections were recorded in crops on the southern tablelands but no rejections were made because of excess purple-top wilt infection (5% at either inspection).

LATE BLIGHT (Phytophthora infestans) contributed little to yield reduction, slight losses being reported from the Sydney Metropolitan Area, Southern Tablelands and Robertson S.C.).

COMMON SCAB (Actinomyces scabies). A number of scabbed tubers were examined during the year but there were no reports of serious loss.

STEM ROT (Sclerotium rolfsii). Records of S. rolfsii on potato in New South Wales are rare but one record was made during the year, at Pitt Town (M.A.), where a 2% loss occurred in a 10 acre crop of the variety Sequoia.

EARLY BLIGHT (Alternaria solani). This disease caused little overall loss, being present mostly when the plants were reaching maturity. However, one severe attack, resulting in defoliation and premature death of plants, were recorded at Robertson (S.C.).

EELWORM (Heterodera marioni). There were many records of eelworm infection of potato tubers during the year, including two instances in crops submitted for certification on the tablelands.

FUSARIUM WILT (Fusarium oxysporum f. tuberosi). There was a slight increase in the incidence of this disease in crops at Crookwell (S.T.) compared to the previous season.

RHUBARB.

DOWNY MILDEW (Peronospora jaapiana). There were many records of this disease, particularly in the Sydney Metropolitan Area and moderate to severe damage was recorded in individual crops.

RUST (Puccinia rhei-undulati). A fairly heavy infection of this disease was recorded at Hornsby (M.A.) during the year.

TOMATO.

SPOTTED WILT (Tomato spotted wilt virus). Though some losses occurred as the result of infection with spotted wilt virus, the incidence of this disease was again markedly below that which occurs in some seasons. Surveys conducted in the Murrumbidgee Irrigation Areas in December revealed only trace infection which later increased to 5%. The most severe infection recorded within the State was in one crop at Carlingford (M.A.) where 15% of the plants were affected by the beginning of December. In the Liverpool district (M.A.) losses were below 1%. In a crop planted at Coonabarabran (N.W.P.) in January, 2 to 3% of the plants had been lost by middle March.

EARLY BLIGHT (Alternaria solani). As usual this disease was widespread in coastal districts in late crops. Plants were severely damaged in May-June at Murwillumbah (N.C.). An unsprayed unpruned ground crop was only lightly infected at Peat's Ridge (C.C.) in March, while an unsprayed staked crop at Dundas (M.A.) was completely defoliated following several days rain during the autumn period. Some defoliation was also observed in native crops at Coonabarabran (N.W.P.) when inspected in early March.

FUSARIUM WILT (Fusarium oxysporum f. lycopersici). The susceptibility of the variety Grosse Lisse to this disease under conditions of high soil moisture was again demonstrated at Peat's Ridge (C.C.) where 20% of a crop which had been partially flooded shortly after planting out in January had wilted by the end of March. In sandy well drained soil at the Botanic Gardens (M.A.) no symptoms were apparent in Grosse Lisse when plants of the highly susceptible variety Rouge de Marmande had completely wilted.

Soil infestation has reached a seriously high level in some farms in the Murrumbidgee Irrigation Areas where the most suitable varieties for canning are susceptible to the disease. However, the disease in general was not as evident as in immediate past seasons. In one crop of Rouge de Marmande at Leppington (M.A.) 50% of the plants were killed. Chloropicrin continues to give satisfactory control of fusarium wilt in the sand soils of the glasshouse colony at Warriewood-Mona Vale.

BACTERIAL SPOT (Xanthomonas vesicatoria). Trace infections only were observed.

LEAF MOULD (Cladosporium fulvum). As usual, any outdoor infections with this disease were unimportant. In glasshouses it continues to be of major importance. Salicylanilide is still the most favoured fungicide, limited trials with an

aerosol of phenyl mercury salicylate having been only moderately successful, possibly because glasshouse construction permits escape of the aerosol.

TOBACCO MOSAIC (Tobacco mosaic virus) was universally distributed throughout the glasshouses and was observed causing stunting and some crop reduction in three crops in the Liverpool district (M.A.)

UNIDENTIFIED DISEASE (Virus). No progress has been made in the certain classification of the virus disease described in last year's Plant Disease Survey. In several crops inspected in the Gosford district (C.C.) trace infection only was observed though in one crop 50% of the plants were affected. At Fairfield West (M.A.) 60% infection was noted in one crop. Growers in some areas refer to the disease as "Grosse Lisse Disease." This may have some basis as in one crop of three varieties at Liverpool (M.A.) 30% of 3,000 Grosse Lisse, 3% of 1,000 Rouge de Marmande and none of 50 plants of Red Cloud were affected. Advanced symptoms have, however, been observed on all three of these varieties.

The disease was also prevalent in several crops in the Newcastle district (C.C.).

VERTICILLIUM WILT (Verticillium dahliae). Verticillium wilt was responsible for some losses in commercial crops in the Murrumbidgee Irrigation Areas during the summer, which was comparatively mild. Similarly a small experimental plot of Pan American grown at the Botanic Gardens (M.A.) was affected with Verticillium wilt. Gross Lisse plants interspersed with the Pan American were not attacked.

MISCELLANEOUS PLANTS.

PETTY SPURGE (Euphorbia peplus):

RUST (Melampsora euphorbiae) was reported for the first time in Australia from a Metropolitan garden in September, 1953. Within a few months it had spread throughout the metropolitan area, to Gosford (C.C.), and localities in the Blue Mountains (C.T.).

NEW PLANT DISEASES.

During the twelve months ending 30th June, 1954, the following diseases were recorded for the first time in New South Wales:-

Actinotis helianthi (Flannel flower). - Fasciation (non-parasitic); Shelly Beach.

Aesculus hippocastanum (Horse Chestnut). - Septoria hippocastani B. & Br. (Leaf spot); Mt. Wilson.

Agaricus campestris (Cultivated mushroom). - Dactylium dendroides Fr. (Mildew); Lilyvale.

Agropyron scabrum (Wheat grass). - Selenophoma donacis var. stomaticola (Baueml.) Sprague & A.G. Johnson (Leaf spot); Kosciusko.

Agropyron x Triticum (Hybrid). - Selenophoma donacis var. stomaticola (Baueml.) Sprague & A.G. Johnson (Leaf spot); Botanic Gardens, Sydney.

Allium cepa (Onion). - Mosaic virus, undet.; Metropolitan area.

Allium ursinum (Garlic). - Lily mosaic virus (Mosaic); Metropolitan area.

Amphibromus neesii (Swamp wallaby grass). - Selenophoma donacis var. stomaticola (Baueml.) Sprague & A.G. Johnson (Leaf spot); Tichborne.

Anisopogon avenaceus (Spear grass). - Selenophoma donacis var. stomaticola (Baueml.) Sprague & A.G. Johnson (Leaf Spot). Oatley Park

Antirrhinum majus (Snapdragon). - Sclerotinia sclerotiorum (Lib.) de Bary (Stem rot); Taree.

Aristida vagans (Wire grass). - Selenophoma donacis var. stomaticola (Baueml.) Sprague & A.G. Johnson (Leaf spot); National Park.

Arundo donax (Reed). - Selenophoma donacis (Pass.) Sprague & A.G. Johnson (Leaf spot); Wallalong.

Asclepias sp. (Milkweed). - Aecidium sp. (Rust); Murwillumbah.

Aucuba japonica. - Diaporthe aucubae Sacc. (Leaf-blight); Metropolitan area.

Babiana sp. - Sclerotinia gladiolorum (Lib.) de Bary (Neck and corm rot); Camden.

Begonia corallina (Bamboo begonia). - Tomato big-bud virus (Greening); Kempsey.

Begonia semperflorens (Bedding begonia). - Sclerotium rolfsii Sacc. (Sclerotium rot); metropolitan area; Meloidogyne sp. (Root knot); metropolitan area.

Bega vulgaris var. cicla (Silver beet). - Sclerotium rolfsii Sacc. (Sclerotium rot); Kempsey.

Buddleia veitchiana (Buddleia). - Phytophthora cinnamomi Rands (Stem and crown rot and wilt); metropolitan area.

Brachychiton populnea (Kurrajong). - Meloidogyne sp. (Root knot); Tamworth.

Callistephus hortensis (Aster). - Meloidogyne sp. (Root Knot); Coff's Harbour.

Carex fascicularis (= C. pseudo-cyperus of older Australian records). Ustilago olivacea (DC) Lul. (Smut); Oberon.

Chenopodium album (Fat hen). - Stagonospora atriplicis (West) Lind. (Leaf spot); Bega.

Citrus limon (Lemon, vars. Eureka, Belair, Villa Franca and Lisbon). - Crinkle leaf virus; Gosford, Narara.

Citrus limon (Rough lemon). - Leaf enation virus; metropolitan area.

Clematis Jackmanii. - Oidium sp. (Powdery mildew); Mt. Wilson.

Cupressus lawsoniana olbrickii (Cypress). - Monochaetia unicornis (Cke & Ellis) Sacc. (Canker); Bathurst.

Dactylis glomerata (Cocksfoot).- Selenophoma donacis var. stomaticola (Baueml.) Sprague & A.G. Johnson (Leaf spot); A.C.T., Orange.

Danthonia caespitosa, D. pallida, D. penicillata, D. ramosa (Wallaby grasses). - Selenophoma donacis var. stomaticola (Baueml.) Sprague & A.G. Johnson (Leaf-spot); Temora, Gunning, Kosciusko and Meadow Flat respectively.

Daphne odora. - Cucumber mosaic virus (mosaic); Metropolitan area.

Delphinium ajacis (Larkspur). - Virus undet. (Black streak and blight); Metropolitan area.

Dendrobium nobile. - Lily mosaic virus (Mosaic) Metropolitan area.

Deyeuxia monticola var. valida. - Selenophoma donacis var. stomaticola (Baueml.) Sprague & A.G. Johnson (Leaf-spot); Canberra district, A.C.T.

Dimorphotheca aurantiaca. - Tomato spotted wilt virus (Shoot blight); Kenthurst.

Euphorbia peplus (Milkweed).- Melampsora euphorbiae-pepli W. Mueller (Rust); Metropolitan area, Gosford, Blackheath.

Freesia hybrida (Freesia).- Fusarium orthoceras var. gladioli Mc.Cull. (Gladiolus yellows); Metropolitan area.

Gladiolus hortulanus (Gladiolus var. Mighty Monarch). - Tomato spotted wilt virus (Spotted wilt); Metropolitan area.

Gnaphalium spicatum (Cudweed). - Puccinia gnaphalii (Speg.) P. Henn. (Rust); Glen William.

Hibiscus rosa-sinensis (Hibiscus). - Armillaria mellea (Vahl. ex Fr.) Quel. (Armillaria root rot); Mt. Wilson.

Holcus mollis (Creeping fog). - Colletotrichum graminicolum (Ces.) G.W. Wils. (Anthracnose); Mt. Wilson.

Hydrangea hortensis (Hydrangea). - Fasciation (non-parasitic); Metropolitan area.

Iberis amara (Candytuft). - Cucumber mosaic virus (Yellows); Metropolitan area.

Jasminum grandiflorum(Jasmine). - Meloidogyne sp. (Root knot); Metropolitan area.

Jasminum mesnyi. - Armillaria mellea (Vahl. ex Fr.) Quel. (Armillaria root rot); Mt. Wilson.

Lactuca scariola (Prickly lettuce). - Tomato big bud virus (Greening); Leeton.

Luffa cylindrica (Loofa). - Fasciation (non-parasitic); Metropolitan area.

Malus sylvestris (Apple). - Botrytis cinerea Pers. ex. Fr. (Eye rot); Batlow.

Medicago arabica (Spotted medic). - Cercospora sp. (Leaf spot); Bega.

Medicago sativa (Lucerne).- Sclerotium rolfsii Sacc. (Crown rot); Warner's Bay.

Morus alba (Mulberry). - Armillaria mellea (Vahl. ex. Fr.) Quel. (Armillaria root rot); Metropolitan area.

Nerium oleander (Oleander). - Cercospora sp. (Leaf-spot); Metropolitan area.

Paeonia suffructicosa and P. lutea (Tree peonies).- Botrytis sp. (Leaf and shoot blight); Mt. Wilson.

Passiflora quadrangularis (Granadilla). - Mosaic, virus undet.; Metropolitan area.

Phlox drummondii (Phlox). - Verticillium dahliae Kleb. (Leaf scald); Metropolitan area.

Polygonatum sp. (Solomon's Seal). - Septoria polygonatis Kab. & Bubak (Leaf-spot); Mt. Wilson.

Primula obconica. - Meloidogyne sp. (Root knot); Metropolitan area; Phytophthora parasitica Dast. (Crown rot); Metropolitan area.

Protea oblongifolia. - Meloidogyne sp.; Metropolitan area.

Ranunculus sp. (Ranunculus). - Tomato spotted wilt virus (Spotted wilt); Metropolitan area.

Rhododendron arboreum and other spp. - Botrytis cinerea Pers. ex Fr. (Seeding blight); Mt. Wilson.

Rhododendron garden hybrids. - Armillaria mellea (Vahl. ex. Fr.) Quel. (Armillaria root rot); Cercospora rhododendri Ferraris (Leaf-spot); Mt. Wilson.

Rosa gallica. - Diplocarpon rosae Wolf (Black spot); Monochaetia compta (Sacc.) Allesch. (Leaf-spot); Mt. Wilson.

Rubus sp. (Boysenberry).- Septoria rubi S. & B. (Cane blotch); Bathurst.

Schizanthus wisetonensis. - Tomato spotted wilt virus (Tip blight); Cucumber mosaic virus (Yellows); Metropolitan area.

Silphium integrifolium. - Oidium sp. (Powdery mildew); Metropolitan area.

Sinningia speciosa (Gloxinia). - Phytophthora parasitica Dast. (Leaf blight and stem rot); Metropolitan area.

Solanum tuberosum (Potato). - Phytophthora erythroseptica Pethybr., (Pink rot); Hanging Rock.

Sorghum vulgare (Sorghum). - Macrophomina phaseoli (Maubl.) Ashby (Crown and stalk rot); Yanco.

Streptocarpus garden hybrid. - Meloidogyne sp. (Root knot); Metropolitan area.

Trifolium subterraneum (Sub-clover). - Cercospora sp. (Leaf and petiole spot); Rossglen.

Ulex europaeus floro-pleno (Double gorse). - Phytophthora cinnamomi Rands (Root rot); Metropolitan area.

Wistaria sinensis (Wistaria). - Oidium sp. (Powdery mildew); Mt. Tomah, Metropolitan area.